

**APPENDIX E**

**WORKSHEETS FOR OFFSITE CONSEQUENCE ANALYSIS**

**Using the Methods in this Guidance**

# WORKSHEET 1

## WORST-CASE ANALYSIS FOR TOXIC GAS

1. Select Scenario (defined by rule for worst case as release of largest quantity over 10 minutes)		Guidance Reference
• Identify toxic gas	<i>Name:</i> _____ <i>CAS number:</i> _____ - ____ - ____	Chapter 2 Section 3.1
• Identify largest quantity in largest vessel or pipeline	<i>Quantity (pounds):</i> _____	
• Identify worst-case meteorological conditions	<i>Atmospheric stability class:</i> F <i>Wind speed:</i> 1.5 m/s <i>Ambient temperature:</i> 25 °C <i>Relative humidity:</i> 50%	
2. Determine Release Rate		
• Estimate release rate <i>Quantity/10 min, except gases liquefied by refrigeration in some cases</i>	<i>Release rate (lbs/min):</i> _____ <i>Will release always take place in enclosure?</i> _____ (If yes, go to next step)	Section 3.1.1
• Revise release rate to account for passive mitigation (enclosure)	<i>Can release cause failure of enclosure?</i> _____ (If yes, use unmitigated release rate) <i>Factor to account for enclosure:</i> 0.55 <i>Mitigated release rate (lbs/min):</i> _____	Section 3.1.2
3. Determine Distance to the Endpoint Specified by Rule		
• Identify endpoint	<i>Endpoint (mg/L):</i> _____	Exhibit B-1
• Determine gas density <i>Consider conditions (e.g., liquefied under pressure)</i>	<i>Dense:</i> _____ <i>Neutrally buoyant:</i> _____	Exhibit B-1
• Determine site topography <i>Rural and urban defined by rule</i>	<i>Rural:</i> _____ <i>Urban:</i> _____	Section 2.1
• Determine appropriate reference table of distances <i>Use 10-minute tables</i>	<i>Reference table used (number):</i> _____	Chapter 4 Reference Tables 1-12
• Find distance on reference table	<i>Release rate/endpoint (neutrally buoyant):</i> _____ <i>Distance to endpoint (mi):</i> _____	Chapter 4 Reference Tables 1-12

## WORKSHEET 2

### WORST-CASE ANALYSIS FOR TOXIC LIQUID

1. Select Scenario <i>(defined by rule for worst case as release of largest quantity to form an evaporating pool)</i>		Guidance Reference
<ul style="list-style-type: none"> <li>Identify toxic liquid</li> <li>Identify concentration for solutions or mixtures</li> </ul>	<i>Name:</i> _____ <i>CAS number:</i> _____-____-____ <i>Concentration in solution or mixture (wt %):</i> ____	Chapter 2 Section 3.2 Section 3.2.4 for mixtures
<ul style="list-style-type: none"> <li>Identify largest quantity in largest vessel or pipeline</li> </ul>	<i>Quantity (pounds):</i> _____ <i>Quantity of regulated substance in mixture:</i> ____	
<ul style="list-style-type: none"> <li>Identify worst-case meteorological conditions</li> </ul>	<i>Atmospheric stability class:</i> F <i>Wind speed:</i> 1.5 m/s <i>Ambient temperature:</i> 25 °C <i>Relative humidity:</i> 50%	
2. Determine Release Rate		
<ul style="list-style-type: none"> <li>Determine temperature of spilled liquid <i>Must be highest maximum daily temperature or process temperature, or boiling point for gases liquefied by refrigeration</i></li> </ul>	<i>Temperature of liquid (°C):</i> _____	Section 3.2 Section 3.1.3
<ul style="list-style-type: none"> <li>Determine appropriate liquid factors for release rate estimation</li> </ul>	<i>LFA:</i> _____ <i>LFB:</i> _____ <i>DF:</i> _____ <i>TCF:</i> _____	Section 3.2, Exhibits B-2, B-4 Section 3.3, Exhibit B-3 for water solutions
<i>Estimate Maximum Pool Area</i>		
<ul style="list-style-type: none"> <li>Estimate maximum pool area <i>Spilled liquid forms pool 1 cm deep</i></li> </ul>	<i>Maximum pool area (ft<sup>2</sup>):</i> _____	Section 3.2.3 Equation 3-6

## WORKSHEET 2 (continued)

<b>Estimate Pool Area for Spill into Diked Area</b>		
<ul style="list-style-type: none"> <li>Estimate diked area <i>Consider failure of dikes or overflow of diked area</i></li> </ul>	<b>Diked area</b> ( $ft^2$ ): _____ <b>Is diked area smaller than maximum area?</b> ____ (If no, use maximum area to estimate release rate) <b>Diked volume</b> ( $ft^3$ ): _____ <b>Spilled volume</b> ( $ft^3$ ): _____ <b>Is spilled volume smaller than diked volume?</b> ____ (If no, estimate overflow) <b>Overflow volume</b> ( $ft^3$ ): _____ <b>Overflow area</b> ( $ft^2$ ): _____	Section 3.2.3
<ul style="list-style-type: none"> <li>Choose pool area for release rate estimation <i>Maximum area, diked area, or sum of diked area and overflow area</i></li> </ul>	<b>Pool area</b> ( $ft^2$ ): _____	Section 3.2.3
<b>Estimate Release Rate from Pool</b>		
<ul style="list-style-type: none"> <li>Estimate release rate for undiked pool (maximum pool area) <i>Based on quantity spilled, LFA or LFB, and DF</i></li> </ul>	<b>Release rate</b> ( $lbs/min$ ): _____	Section 3.2.2 Section 3.2.4 (mixtures) Equation 3-3 or 3-4
<ul style="list-style-type: none"> <li>Estimate release rate for diked pool (use pool area from previous section) <i>Based on pool area and LFA or LFB</i></li> </ul>	<b>Release rate</b> ( $lbs/min$ ): _____	Section 3.2.2 Section 3.2.4 (mixtures) Equation 3-7 or 3-8
<ul style="list-style-type: none"> <li>Revise release rate for release in building <i>Apply factor to release rate</i></li> </ul>	<b>Release rate if outside</b> ( $lbs/min$ ) _____ (Use release rate for undiked or diked pool) <b>Factor to account for enclosure:</b> 0.1 <b>Revised release rate</b> ( $lbs/min$ ): _____	Section 3.2.3 Equations 3-9, 3-10
<ul style="list-style-type: none"> <li>Revise release rate for temperature <i>Apply appropriate TCF to release rate</i></li> </ul>	<b>Revised release rate</b> ( $lbs/min$ ): _____	Section 3.2.5 Equation 3-11
<ul style="list-style-type: none"> <li>Estimate duration of release</li> </ul>	<b>Release duration</b> ( $min$ ): _____	Section 3.2.2 Equation 3-5

## WORKSHEET 2 (continued)

<b>3. Determine Distance to the Endpoint</b>		
<ul style="list-style-type: none"> <li>Identify endpoint <i>Specified by rule</i></li> </ul>	<b>Endpoint (mg/L):</b> _____	Exhibit B-2
<ul style="list-style-type: none"> <li>Determine vapor density</li> </ul>	<b>Dense:</b> _____ <b>Neutrally buoyant:</b> _____	Exhibit B-2
<ul style="list-style-type: none"> <li>Determine site topography <i>Rural and urban defined by rule</i></li> </ul>	<b>Rural:</b> _____ <b>Urban:</b> _____	Section 2.1
<ul style="list-style-type: none"> <li>Determine appropriate reference table of distances <i>Based on release duration, vapor density, topography</i></li> </ul>	<b>Reference table used (number):</b> _____	Chapter 4 Reference Tables 1-12
<ul style="list-style-type: none"> <li>Find distance on reference table</li> </ul>	<b>Release rate/endpoint (neutrally buoyant):</b> _____ <b>Distance to endpoint (mi):</b> _____	Chapter 4 Reference Tables 1-12

### WORKSHEET 3

#### WORST-CASE ANALYSIS FOR FLAMMABLE SUBSTANCE

<b>1. Select Scenario</b> ( <i>defined by rule for worst case as vapor cloud explosion of largest quantity</i> )		<b>Guidance Reference</b>
<ul style="list-style-type: none"> <li>Identify flammable substance</li> </ul>	<b>Name:</b> _____ <b>CAS number:</b> _____-_____-____	Chapter 2 Section 3.1
<ul style="list-style-type: none"> <li>Identify largest quantity in largest vessel or pipeline  <i>Consider total quantity of flammable substance, including non-regulated substances in flammable mixtures</i> </li> </ul>	<b>Quantity (pounds):</b> _____	
<b>2. Determine Distance to the Endpoint</b> ( <i>endpoint specified by the rule as 1 psi overpressure; yield factor assumed to be 10% for TNT-equivalent model</i> )		
<ul style="list-style-type: none"> <li>Estimate distance to 1 psi using Reference Table  <i>Find quantity, read distance from table</i> </li> </ul>	<b>Distance to 1 psi (mi):</b> _____	Chapter 5 Reference Table 13
<ul style="list-style-type: none"> <li>Alternatively, estimate distance to 1 psi using equation</li> </ul>	For pure substance: <b>Heat of combustion</b> (kJ/kg): _____ For mixture: <b>Heat of combustion of major component</b> (kJ/kg): _____ <b>Heats of combustion of other components</b> (kJ/kg): _____, _____, _____  <b>Distance to 1 psi (mi).</b> _____	Chapter 5 Appendix C.1 Appendix C.2 Exhibit C-1

**WORKSHEET 4**  
**ALTERNATIVE SCENARIO ANALYSIS FOR TOXIC GAS**

1. Select Scenario		Guidance Reference
<ul style="list-style-type: none"> <li>Identify toxic gas</li> </ul>	<i>Name:</i> _____ <i>CAS number:</i> _____-_____-____	Chapter 6 Chapter 7 Section 7.1
<ul style="list-style-type: none"> <li>Identify conditions of storage or processing of toxic gas  <i>Treat gases liquefied by refrigeration as liquids</i></li> </ul>	<i>Non-liquefied pressurized gas:</i> _____ <i>Gas liquefied under pressure:</i> _____ <i>In tank:</i> _____ <i>In pipeline:</i> _____ <i>Other (describe):</i> _____ _____	
<ul style="list-style-type: none"> <li>Develop alternative scenario <ul style="list-style-type: none"> <li>▸ More likely than worst case</li> <li>▸ Should reach endpoint off site</li> </ul> </li> </ul>	<i>Describe scenario:</i> _____ _____ _____	
<ul style="list-style-type: none"> <li>Identify average meteorological conditions</li> </ul>	<i>Atmospheric stability class:</i> D <i>Wind speed:</i> 3.0 m/s <i>Ambient temperature:</i> 25 °C <i>Relative humidity:</i> 50%	
2. Determine Release Rate		
<ul style="list-style-type: none"> <li>Estimate gas release rate from hole in tank (choked/ maximum flow) for <ul style="list-style-type: none"> <li>▸ Pressurized gas</li> <li>▸ Gas liquefied under pressure released from vapor space</li> </ul> </li> </ul>	<i>Hole area (in<sup>2</sup>):</i> _____ <i>Tank pressure (psia):</i> _____ <i>Tank temperature (K):</i> _____ <i>GF:</i> _____ <i>Release rate (lbs/min):</i> _____	Section 7.1.1 Equation 7-1 Exhibit B-1
<ul style="list-style-type: none"> <li>Estimate flashing liquid release rate from hole in tank <ul style="list-style-type: none"> <li>▸ Gas liquefied under pressure released from liquid space</li> </ul> </li> </ul>	<i>Hole area (in<sup>2</sup>):</i> _____ <i>Tank pressure (psig):</i> _____ <i>DF:</i> _____ <i>Liquid height above hole (in):</i> _____ <i>Release rate (lbs/min):</i> _____	Section 7.1.2 Equation 7-2 Exhibit B-1

### WORKSHEET 4 (continued)

<ul style="list-style-type: none"> <li>Estimate flashing liquid release rate from break in long pipeline             <ul style="list-style-type: none"> <li>Gas liquefied under pressure completely filling pipeline</li> </ul> </li> </ul>	<i>Initial flow rate (lbs/min):</i> _____ <i>DF:</i> _____ <i>Initial flow velocity (ft/min):</i> _____ <i>Pipe pressure (psi):</i> _____ <i>Change in pipe elevation (ft):</i> _____ <i>Cross-sectional pipe area (ft<sup>2</sup>):</i> _____ <i>Release rate (lbs/min):</i> _____	Sections 7.1.1 and 7.2.1 Exhibit B-1
<ul style="list-style-type: none"> <li>Estimate release duration</li> </ul>	<i>Time to stop release (min):</i> _____ <i>Time to empty tank or pipe (min):</i> _____ <i>Default release duration:</i> 60 min	Section 7.1.1
<ul style="list-style-type: none"> <li>Revise release rate for passive mitigation (enclosure)</li> </ul>	<i>Release rate if outside (lbs/min):</i> _____ <i>Factor to account for enclosure:</i> 0.55 <i>Revised release rate (lbs/min):</i> _____	Section 7.1.2 Section 3.1.2
<ul style="list-style-type: none"> <li>Revise release rate for active mitigation</li> </ul>	<i>Active mitigation technique used:</i> _____ _____ <i>Time to stop release using active technique (min):</i> _____ <i>Fractional release rate reduction by active technique:</i> _____ <i>Revised release rate (lb/min):</i> _____	
<ul style="list-style-type: none"> <li>Estimate release duration (mitigated release)</li> </ul>	<i>Release duration (min):</i> _____	Section 7.1.2
<ul style="list-style-type: none"> <li>Other release rate estimation</li> </ul>	<i>Release rate (lb/min):</i> _____ <i>Method of release rate estimation (describe):</i> _____ _____ <i>Release duration (min):</i> _____	
<b>3. Determine Distance to the Endpoint</b>		
<ul style="list-style-type: none"> <li>Identify endpoint <i>Specified by rule</i></li> </ul>	<i>Endpoint (mg/L):</i> _____	Exhibit B-1
<ul style="list-style-type: none"> <li>Determine gas density <i>Consider conditions (e.g., liquefied under pressure, refrigeration)</i></li> </ul>	<i>Dense:</i> _____ <i>Neutrally buoyant:</i> _____	Exhibit B-1
<ul style="list-style-type: none"> <li>Determine site topography <i>Rural and urban defined by rule</i></li> </ul>	<i>Rural:</i> _____ <i>Urban:</i> _____	Section 2.1

### WORKSHEET 4 (continued)

<ul style="list-style-type: none"><li>• Determine appropriate reference table of distances <i>Based on release duration, vapor density, and topography</i></li></ul>	<b><i>Reference table used (number):</i></b> _____	Chapter 8 Reference Tables 14-25
<ul style="list-style-type: none"><li>• Find distance on reference table</li></ul>	<b><i>Release rate/endpoint (neutrally buoyant):</i></b> _____ <b><i>Distance to endpoint (mi):</i></b> _____	Chapter 8 Reference Tables 14-25

**WORKSHEET 5**  
**ALTERNATIVE SCENARIO ANALYSIS FOR TOXIC LIQUID**

1. Select Scenario		Guidance Reference
<ul style="list-style-type: none"> <li>Identify toxic liquid <i>Include gases liquefied by refrigeration</i></li> <li>Identify concentration for solutions or mixtures</li> </ul>	<i>Name:</i> _____ <i>CAS number:</i> _____-_____-_____ <i>Concentration in solution or mixture (wt %):</i> ____	Chapter 6 Chapter 7 Section 7.2
<ul style="list-style-type: none"> <li>Identify conditions of storage or processing of toxic liquid</li> </ul>	<i>Atmospheric tank:</i> _____ <i>Pressurized tank:</i> _____ <i>Pipeline:</i> _____ <i>Other (describe):</i> _____ _____	
<ul style="list-style-type: none"> <li>Develop alternative scenario               <ul style="list-style-type: none"> <li>▸ More likely than worst case</li> <li>▸ Should reach endpoint off site</li> </ul> </li> </ul>	<i>Describe scenario:</i> _____ _____ _____	
<ul style="list-style-type: none"> <li>Identify meteorological conditions</li> </ul>	<i>Atmospheric stability class:</i> F <i>Wind speed:</i> 3.0 m/s <i>Ambient temperature:</i> 25 °C <i>Relative humidity:</i> 50%	
<b>2. Determine Release Rate</b>		
<i>Determine Liquid Release Rate and Quantity Released into Pool</i>		
<ul style="list-style-type: none"> <li>Estimate liquid release rate from hole in atmospheric tank</li> </ul>	<i>Hole area (in<sup>2</sup>):</i> _____ <i>LLF:</i> _____ <i>Liquid height above hole (in):</i> _____ <i>Liquid release rate (lbs/min):</i> _____	Section 7.2.1 Equation 7-4 Exhibit B-2
<ul style="list-style-type: none"> <li>Estimate liquid release rate from break in long pipeline</li> </ul>	<i>Initial flow rate (lbs/min):</i> _____ <i>DF:</i> _____ <i>Initial flow velocity (ft/min):</i> _____ <i>Pipe pressure (psi):</i> _____ <i>Change in pipe elevation (ft):</i> _____ <i>Cross-sectional pipe area (ft<sup>2</sup>):</i> _____ <i>Liquid release rate (lbs/min):</i> _____	Section 7.2.1 Equations 7-5 - 7-7 Exhibit B-2
<ul style="list-style-type: none"> <li>Estimate liquid release duration</li> </ul>	<i>Time to stop release (min):</i> _____ <i>Time to empty tank to level of hole (min):</i> _____	Section 7.2.1

### WORKSHEET 5 (continued)

<ul style="list-style-type: none"> <li>Revise liquid release duration for active mitigation</li> </ul>	<b>Active mitigation technique (describe):</b> _____ <b>Time to stop release (min):</b> _____	Section 7.2.2
<ul style="list-style-type: none"> <li>Estimate quantity of liquid released into pool</li> </ul> <i>Liquid release rate times duration</i>	<b>Quantity of liquid released (lbs):</b> _____	Sections 7.2.1, 7.2.2, 7.2.3
<b>Determine Pool Area and Evaporation Rate from Pool</b>		
<ul style="list-style-type: none"> <li>Determine temperature of spilled liquid</li> </ul>	<b>Temperature of liquid (°C):</b> _____	Section 7.2.3
<ul style="list-style-type: none"> <li>Determine appropriate liquid factors for release rate estimation</li> </ul>	<b>LFA:</b> _____ <b>LFB:</b> _____ <b>DF:</b> _____ <b>TCF:</b> _____	Sections 7.2.3, 3.2, and Exhibits B-2, B-4 Section 3.3 and Exhibit B-3 for water solutions
<b>Estimate Maximum Pool Area</b>		
<ul style="list-style-type: none"> <li>Estimate maximum pool area</li> </ul> <i>Spilled liquid forms pool 1 cm deep</i>	<b>Maximum pool area (ft<sup>2</sup>):</b> _____	Section 7.2.3, 3.2.3 Equation 3-6
<b>Estimate Pool Area for Spill into Diked Area</b>		
<ul style="list-style-type: none"> <li>Estimate diked area</li> </ul> <i>Consider possibility of failure of dikes or overflow of diked area</i>	<b>Diked area (ft<sup>2</sup>):</b> _____ <b>Is diked area smaller than maximum area?</b> ____ (If no, use maximum area to estimate release rate) <b>Diked volume (ft<sup>3</sup>):</b> _____ <b>Spilled volume (ft<sup>3</sup>):</b> _____ <b>Is spilled volume smaller than diked volume?</b> ____ (If no, estimate overflow) <b>Overflow volume (ft<sup>3</sup>):</b> _____ <b>Overflow area (ft<sup>2</sup>):</b> _____	Section 7.2.3, 3.2.3
<ul style="list-style-type: none"> <li>Choose pool area for evaporation rate estimation</li> </ul> <i>Maximum area, diked area, or sum of diked area and overflow area</i>	<b>Pool area (ft<sup>2</sup>):</b> _____	Section 7.2.3, 3.2.3

### WORKSHEET 5 (continued)

Estimate Release Rate from Pool		
<ul style="list-style-type: none"> <li>Estimate release rate for undiked pool <i>Based on quantity spilled, LFA or LFB, and DF</i></li> </ul>	<b>Release rate (lbs/min):</b> _____	Section 7.2.3 Section 3.2.4 (mixtures) Equation 7-8 or 7-9
<ul style="list-style-type: none"> <li>Estimate release rate for diked pool (use pool area from previous section) <i>Based on pool area and LFA or LFB</i></li> </ul>	<b>Release rate (lbs/min):</b> _____	Sections 7.2.3, 3.2.2 Section 3.2.4 (mixtures) Equation 7-10 or 7-11
<ul style="list-style-type: none"> <li>Revise release rate for temperature <i>Apply appropriate TCF to release rate</i></li> </ul>	<b>Revised release rate (lbs/min):</b> _____	Sections 7.2.3, 3.2.5 Equation 3-11
<ul style="list-style-type: none"> <li>Revise release rate for release in building <i>Apply factor to release rate</i></li> </ul>	<b>Release rate if outside (lbs/min):</b> _____ <b>Factor to account for enclosure:</b> 0.05 <b>Revised release rate (lbs/min):</b> _____	Sections 7.2.3, 3.2.3
<ul style="list-style-type: none"> <li>Revise release rate for active mitigation technique</li> </ul>	<b>Active mitigation technique used:</b> _____ _____ <b>Fractional release rate reduction by active technique:</b> _____ <b>Revised release rate (lb/min):</b> _____	Section 7.2.3
<ul style="list-style-type: none"> <li>Compare liquid release rate and pool evaporation rate</li> <li>Choose smaller release rate as release rate for analysis</li> </ul>	<b>Release rate (lb/min):</b> _____	Section 7.2.3
3. Determine Distance to the Endpoint		
<ul style="list-style-type: none"> <li>Identify endpoint <i>Specified by rule</i></li> </ul>	<b>Endpoint (mg/L):</b> _____	Exhibit B-2
<ul style="list-style-type: none"> <li>Determine vapor density</li> </ul>	<b>Dense:</b> _____ <b>Neutrally buoyant:</b> _____	Exhibit B-2
<ul style="list-style-type: none"> <li>Determine site topography <i>Rural and urban defined by rule</i></li> </ul>	<b>Rural:</b> _____ <b>Urban:</b> _____	Section 2.1

### WORKSHEET 5 (continued)

<ul style="list-style-type: none"><li>• Determine appropriate reference table of distances <i>Based on release duration, vapor density, and topography</i></li></ul>	<b><i>Reference table used (number):</i></b> _____	Chapter 8 Reference Tables 14-25
<ul style="list-style-type: none"><li>• Find distance on reference table</li></ul>	<b><i>Release rate/endpoint (neutrally buoyant):</i></b> _____ <b><i>Distance to endpoint (mi):</i></b> _____	Chapter 8 Reference Tables 14-25

# WORKSHEET 6

## ALTERNATIVE SCENARIO ANALYSIS FOR FLAMMABLE SUBSTANCE

<b>1. Select Scenario</b>		<b>Guidance Reference</b>
<ul style="list-style-type: none"> <li>• Identify flammable substance</li> </ul>	<i>Name:</i> _____ <i>CAS number:</i> _____-____-____	Chapter 6
<ul style="list-style-type: none"> <li>• Identify conditions of storage or processing of flammable substance</li> </ul> <p><i>Treat gases liquefied by refrigeration as liquids</i></p>	<i>Non-liquefied pressurized gas:</i> _____ <i>Gas liquefied under pressure:</i> _____ <i>Gas liquefied by refrigeration:</i> _____ <i>Liquid under atmospheric pressure:</i> _____ <i>Liquid under pressure greater than atmospheric:</i> _____ <i>Other (describe):</i> _____ _____	
<ul style="list-style-type: none"> <li>• Identify appropriate scenario               <ul style="list-style-type: none"> <li>▸ Vapor cloud fire</li> <li>▸ Pool fire</li> <li>▸ BLEVE/fireball</li> <li>▸ Vapor cloud explosion</li> <li>▸ Other (not covered by OCA Guidance)</li> </ul> </li> </ul>	<i>Alternative scenario/type of fire or explosion (describe):</i> _____ _____ _____	
<b>2. Determine Release Rate</b>		
<i>Determine Release Rate for Vapor Cloud Fire</i>		
<ul style="list-style-type: none"> <li>• For gas releases and flashing liquid releases, <i>see Worksheet 4</i></li> </ul>	<i>Release rate (lbs/min):</i> _____	Section 9.1 Section 7.1 Equations 7-1, 7-2, 7-3 Exhibit C-2
<ul style="list-style-type: none"> <li>• For liquid releases (non-flashing), <i>see Worksheet 5</i></li> </ul>	<i>Liquid release rate (lbs/min):</i> _____ <i>Liquid release duration (min):</i> _____ <i>Quantity in pool (lbs):</i> _____ <i>Release rate to air (lbs/min):</i> _____	Section 9.2 Section 7.2 Equations 7-4-7-12 Exhibit C-3
<i>Determine Pool Area for Pool Fire</i>		
Estimate pool area: <i>See Worksheet 5</i>	<i>Quantity in pool (lbs):</i> _____ <i>Pool area (ft<sup>2</sup>):</i> _____	Sections 10.2 Section 7.2 Exhibits C-2, C-3

## WORKSHEET 6 (continued)

<b><i>Determine Quantity for BLEVE</i></b>		
Determine quantity in tank	<b><i>Quantity (lbs):</i></b> _____	Section 10.3
<b><i>Determine Quantity for Vapor Cloud Explosion</i></b>		
Determine quantity in tank	<b><i>Quantity (lbs):</i></b> _____	Section 10.4
<b>3. Determine Distance to the Endpoint</b>		
<ul style="list-style-type: none"> <li>• Identify endpoint suitable for scenario               <ul style="list-style-type: none"> <li>▸ LFL</li> <li>▸ 5 kW/m<sup>2</sup> for 40 seconds</li> <li>▸ 1 psi overpressure</li> </ul> </li> </ul>	<b><i>Endpoint:</i></b> _____	Chapter 6 Exhibits C-2, C-3
<b><i>Determine Distance to LFL for Vapor Cloud Fire</i></b>		
• Determine vapor density	<b><i>Dense:</i></b> _____ <b><i>Neutrally buoyant:</i></b> _____	Exhibit B-2
• Determine site topography <i>Rural and urban defined by rule</i>	<b><i>Rural:</i></b> _____ <b><i>Urban:</i></b> _____	Section 2.1
• Determine appropriate reference table of distances <i>Based on vapor density and topography</i>	<b><i>Reference table used (number):</i></b> _____	Section 10.1 Reference Tables 26-29
• Find distance on reference table	<b><i>Release rate/endpoint (neutrally buoyant):</i></b> _____ <b><i>Distance to LFL (mi):</i></b> _____	Section 10.1 Reference Tables 26-29
<b><i>Determine Distance to Heat Radiation Endpoint for Pool Fire</i></b>		
• Calculate distance to 5 kW/m <sup>2</sup>	<b><i>PFF:</i></b> _____ <b><i>Pool area (ft<sup>2</sup>):</i></b> _____ <b><i>Distance (ft):</i></b> _____	Section 10.2 Equation 10-1

## WORKSHEET 6 (continued)

<b><i>Determine Distance to Heat Radiation Endpoint for BLEVE</i></b>		
Determine distance for radiation from fireball equivalent to 5 kW/m <sup>2</sup> for 40 seconds	<b><i>Quantity (lbs):</i></b> _____ <b><i>Distance (mi):</i></b> _____	Section 10.3 Reference Table 30
<b><i>Determine Distance to Overpressure Endpoint For Vapor Cloud Explosion</i></b>		
Determine distance to 1 psi <i>Quantity in cloud can be less than total quantity</i> <i>Yield factor can be less than 10%</i>	<b><i>FFF:</i></b> _____ <b><i>Quantity flashed:</i></b> _____ <b><i>Yield factor:</i></b> _____ <b><i>Distance to 1 psi (mi):</i></b> _____	Section 10.4 Exhibit C-2 Reference Table 13